AMENDMENTS TO THE CLAIMS

Claims 1-18 (Canceled)

19. (Previously Presented) An optical disc drive apparatus comprising:

an optical pickup head that emits a light beam to the optical storage medium, detects the light beam reflected from the optical storage medium having a recording layer for recording data, and outputs a signal based on the received reflected light; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using two threshold values,

whereby digital data of length kT based on a period T is recorded as a mark and space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T mark is narrower than the width of a 3T or longer mark.

20. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to an optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using maximum likelihood decoding,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T long digital data mark is narrower than the width of a digital data mark longer than 2T.

21. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to an optical storage medium having a first recording layer and a second recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light, wherein the first recording layer is a semi-transparent layer that passes part of the light incident thereon, wherein light passing the first recording layer reaches the second recording layer; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using two threshold values,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k is an integer of 2 or more.

22. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to the optical storage medium having a first recording layer and a second recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light, wherein the first recording layer is a semi-transparent layer that passes part of the light incident thereon, wherein light passing the first recording layer reaches the second recording layer; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium using maximum likelihood decoding,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k being an integer of 2 or more.

23. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to an optical storage medium having a first recording layer and a second recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light, wherein the first recording layer is a semi-transparent layer that passes part of the light incident thereon, wherein light passing the first recording layer reaches the second recording layer;

a clock generating means which receives signals output from the optical pickup head and extracting digital information recorded to the optical storage medium, generates a clock signal by treating as invalid signals obtained from the edges of 2T digital data marks or spaces; and

a demodulation means that reproduces data recorded to the optical storage medium,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the first recording layer, where k is an integer of 2 or more.

24. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to an optical storage medium having a recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light;

a clock generating means which receives signals output from the optical pickup head and extracting digital information recorded to the optical storage medium, generates a clock signal by treating as invalid signals obtained from the edges of 2T digital data marks or spaces; and

a demodulation means that reproduces data recorded to the optical storage medium,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more, and the width of a 2T digital data mark is narrower than the width of a digital data mark longer than 2T.

25. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to an optical storage medium having a recording layer, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light;

a clock generating means for receiving signals output from the optical pickup head and extracting digital information recorded to the optical storage medium;

a demodulation means that reproduces data recorded to the optical storage medium;

a TE signal generating means used for tracking control; and

a tracking error signal generating means that generates a tracking error signal from change in the signals produced when the light beam strikes the edges of the mark or space sequence recorded to the optical storage medium, and generates the tracking error signal by invalidating signal change resulting from the light beam at the edges of 2T-long digital data marks or spaces,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, where k is an integer of 2 or more.

26. (Previously Presented) An optical disc drive according to claim 19, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

27. (Previously Presented) An optical disc drive according to claim 19, wherein the recording layer of the optical storage medium can be recorded only once.

28. (Previously Presented) An optical disc drive according to claim 19, wherein the recording layer of the optical storage medium is read-only.

29. (Previously Presented) An optical disc drive according to claim 21, wherein the first recording layer of the optical storage medium is read-only and the second recording layer can be recorded only once.

30. (Previously Presented) An optical disc drive according to claim 21, wherein the first recording layer of the optical storage medium is read-only and the second recording layer can be repeatedly recorded and erased.

31. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to the optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium,

whereby the optical disc drive adjusts the length of a 2T digital data mark so that the length detected from a pattern repeatedly recording 2T-long digital data marks and spaces goes to the same level as a threshold value suitable for reproducing information in a pattern repeatedly recording 3T or longer digital data marks and spaces,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, k is an integer of 2 or more, and the width of a 2T digital data mark is narrower than the width of a 3T or longer digital data mark.

32. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to the optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium,

wherein the optical disc drive has an evaluation standard so that mark and space length is appropriate,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer, and k is an integer of 2 or more,

whereby the optical disc drive adjusts the length of digital data marks and spaces longer than 2T so that the length is appropriate relative to the evaluation standard.

33. (Previously Presented) An optical disc drive comprising:

an optical pickup head that emits a light beam to the optical storage medium having a recording layer for recording data, detects the light beam reflected from the optical storage medium, and outputs a signal based on the received reflected light; and

a demodulation means that receives the signal output from the optical pickup head and reproduces information recorded to the optical storage medium,

wherein the optical disc drive records information using k of 3 or more, when recording to the optical storage medium that is normally recorded with k being an integer of 2 or more,

wherein the optical disc drive adjusts the length of digital data marks and spaces of length 3T or more so that the length is appropriate relative to the evaluation standard,

whereby digital data of length kT based on a period T is recorded as a mark or space sequence to the recording layer using an evaluation standard for adjusting mark and space length to an appropriate length.

34. (Previously Presented) An optical disc drive according to claim 32, wherein the evaluation standard is jitter.

35. (Previously Presented) An optical disc drive according to claim 32, wherein the evaluation standard is an error rate.

36. (Previously Presented) An optical disc drive according to claim 32, wherein the evaluation standard is the time period of an obtained signal.

37. (Previously Presented) An optical disc drive according to claim 31, wherein mark length is adjusted by adjusting the power of the laser beam emitted from the optical pickup head.

38. (Previously Presented) An optical disc drive according to claim 31, wherein mark length is adjusted by adjusting the pulse width of the laser beam emitted from the optical pickup head.

39. (Previously Presented) An optical disc drive according to claim 31, wherein the optical disc drive measures jitter from an optical storage medium where the width of 2T-long digital data marks is narrower than the width of digital data marks longer than 2T.

40. (Previously Presented) An optical disc drive according to claim 31, wherein the optical disc drive measures jitter in a signal obtained by emitting a light beam to the first recording layer of an optical storage medium having a first recording layer and a second recording layer,

wherein the first recording layer is a semi-transparent film that passes part of the light incident thereon,

wherein the light passing the first recording layer reaches the second recording layer.

41. (Previously Presented) An optical disc drive according to claim 19, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is I2pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is I8pp, and I2pp/I8pp < 0.2.

42. (Previously Presented) An optical disc drive according to claim 19, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and ML < λ/(1.25 * NA).

43. (Previously Presented) An optical disc drive according to claim 19, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

44. (Previously Presented) An optical storage medium comprising:

a first recording layer as recording layers for recording information, wherein the first recording layer is a read-only recording layer; and

a second recording layer as recording layers for recording information, wherein the second recording layer is a recording layer enabling recording data only once, wherein the first recording layer is disposed closer to the light incidence side of the medium than the second recording layer,

whereby information is recorded or reproduced by exposure to a light beam.

45. (Previously Presented) An optical storage medium comprising:

a first recording layer as recording layers for recording information, wherein the first recording layer is a read-only recording layer; and

a second recording layer as recording layers for recording information, wherein the second recording layer is a recording layer enabling repeatedly recording and erasing data, wherein the first recording layer is disposed closer to the light incidence side of the medium than the second recording layer,

whereby information is recorded or reproduced by exposure to a light beam.

46. (Previously Presented) An optical storage medium including multiple tracks formed concentrically or in a spiral for recording information using marks and spaces between the marks by emitting a light beam to the recording surface of the tracks, wherein a signal not including edges adjacent to the shortest marks and/or the shortest spaces denotes a first playback signal quality.

47. (Previously Presented) An optical storage medium according to claim 46, wherein a signal including edges adjacent to the shortest marks and/or the shortest spaces denotes a second playback signal quality.

48. (Previously Presented) An optical storage medium according to claim 47, wherein the first playback signal quality is higher than the second playback signal quality.

49. (Previously Presented) An optical storage medium according to claim 46, wherein jitter is detected as the playback signal quality.

50. (Previously Presented) An optical storage medium according to claim 49, wherein leading-edge jitter and trailing-edge jitter are distinguished each other.

51. (Previously Presented) An optical storage medium according to claim 46, wherein an error rate is detected as the playback signal quality.

52. (Previously Presented) An optical storage medium according to claim 46, wherein the optical storage medium includes multiple recording layers, wherein playback signal quality is set for each layer.

53. (Previously Presented) An optical storage medium according to claim 52, wherein the quality of the layer farthest from the optical pickup head during recording is highest.

54. (Previously Presented) An optical storage medium according to claim 46, wherein the playback signal quality threshold value is written to a specific area of the optical storage medium.

55. (Previously Presented) An optical storage medium according to claim 54, wherein the specific area is a read-only area.

56. (Previously Presented) An optical storage medium according to claim 46, wherein signals also are recorded to tracks adjacent to a track having a specified playback signal quality.

57. (Previously Presented) An optical storage medium according to claim 56, wherein the track having a specified playback signal quality is recorded before recording to the adjacent tracks.

58. (Previously Presented) An optical storage medium according to claim 57, wherein the emission power of the laser beam when recording the adjacent tracks is greater than the emission power of the laser beam when recording the track having a specified playback signal quality.

59. (Previously Presented) An optical storage medium according to claim 56, wherein the track having a specified playback signal quality is recorded after recording to one adjacent track.

60. (Previously Presented) An optical storage medium according to claim 56, wherein the track having a specified playback signal quality is recorded after recording to both adjacent tracks.

61. (Previously Presented) An optical storage medium according to claim 46, wherein the track having a specified playback signal quality is recorded multiple times.

62. (Previously Presented) An optical storage medium according to claim 61, wherein the optical storage medium has a specified playback signal quality in all of a specific number of recordings.

63. (Previously Presented) An optical storage medium according to claim 61, wherein the optical storage medium is recorded at a second emission power level after recorded at a first emission power level, wherein the first emission power level is higher than the second emission power level.

64. (Previously Presented) An optical disc drive for reading an optical storage medium including multiple tracks formed concentrically or in a spiral for recording information using marks and spaces between the marks by emitting a light beam to the recording surface of the tracks,

wherein the optical storage medium has a first playback signal quality denoted by a signal not including edges adjacent to the shortest marks and/or the shortest spaces.

65. (Previously Presented) An optical disc drive for reading an optical storage medium including multiple tracks formed concentrically or in a spiral for recording information using marks and spaces between the marks by emitting a light beam to the recording surface of the tracks,

wherein the optical storage medium has a first playback signal quality denoted by a signal not including edges adjacent to the shortest marks and/or the shortest spaces, and a second playback signal quality denoted by a signal including edges adjacent to the shortest marks and/or the shortest spaces.

66. (Previously Presented) An optical disc drive for recording comprising:

a signal recording means for recording a signal;

a signal reproducing means for reproducing the recorded signal;

a detection means for detecting a shortest mark or a shortest space in the reproduced signal; and

a playback signal quality detection means for detecting playback signal quality in a signal not including edges adjacent to the detected shortest mark or shortest space,

whereby a signal not including edges adjacent to the shortest marks and/or the shortest spaces has a first playback signal quality.

67. (Previously Presented) An optical disc drive according to claim 66, wherein a signal including edges adjacent to the shortest marks and/or the shortest spaces denotes a second playback signal quality.

68. (Previously Presented) An optical disc drive according to claim 67, wherein the first playback signal quality is higher than the second playback signal quality.

69. (Previously Presented) An optical disc drive according to claim 64, wherein the optical disc drive detects jitter as playback signal quality.

70. (Previously Presented) An optical disc drive according to claim 69, wherein the optical disc drive distinguishes leading-edge jitter and trailing-edge jitter.

71. (Previously Presented) An optical disc drive according to claim 64, wherein the optical disc drive detects an error rate as playback signal quality.

72. (Previously Presented) An optical disc drive according to claim 66, wherein the optical disc drive sets playback signal quality for each recording layer of an optical storage medium having multiple recording layers.

73. (Previously Presented) An optical disc drive according to claim 72, wherein the quality of the layer farthest from the optical pickup head during recording is highest.

74. (Previously Presented) An optical disc drive according to claim 66, wherein the playback signal quality threshold value is written to a specific area of the optical disc drive.

75. (Previously Presented) An optical disc drive according to claim 66, wherein signals are also recorded to tracks adjacent to a track having a specified playback signal quality.

76. (Previously Presented) An optical disc drive according to claim 75, wherein the track having a specified playback signal quality is recorded before recording to the adjacent tracks.

77. (Previously Presented) An optical disc drive according to claim 76, wherein the emission power of the laser beam when recording the adjacent tracks is greater than the emission power of the laser beam when recording the track having a specified playback signal quality.

78. (Previously Presented) An optical disc drive according to claim 75, wherein the track having a specified playback signal quality is recorded after recording to one adjacent track.

79. (Previously Presented) An optical disc drive according to claim 75, wherein the track having a specified playback signal quality is recorded after recording to both adjacent tracks.

80. (Previously Presented) An optical disc drive according to claim 75, wherein the track having a specified playback signal quality is recorded multiple times.

81. (Previously Presented) An optical disc drive according to claim 80, wherein the optical disc drive has a specified playback signal quality in all of a specific number of recordings.

82. (Previously Presented) An optical disc drive according to claim 80, wherein the optical disc drive records at a second emission power level after recording at a first emission power level, wherein the first emission power level is higher than the second emission power level.

83 (Previously Presented) An optical disc drive according to claim 64, wherein the optical disc drive determines emission power for recording according to the detected playback signal quality.

84. (Previously Presented) An optical disc drive according to claim 83, wherein the emission power is determined in an area outside the user area for recording user data.

85. (Previously Presented) An optical disc drive according to claim 20, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

86. (Previously Presented) An optical disc drive according to claim 21, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

87. (Previously Presented) An optical disc drive according to claim 22, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

88. (Previously Presented) An optical disc drive according to claim 23, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

89. (Previously Presented) An optical disc drive according to claim 24, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

90. (Previously Presented) An optical disc drive according to claim 25, wherein the recording layer of the optical storage medium enables repeatedly recording and erasing information.

91. (Previously Presented) An optical disc drive according to claim 20, wherein the recording layer of the optical storage medium can be recorded only once.

92. (Previously Presented) An optical disc drive according to claim 21, wherein the recording layer of the optical storage medium can be recorded only once.

93. (Previously Presented) An optical disc drive according to claim 22, wherein the recording layer of the optical storage medium can be recorded only once.

94. (Previously Presented) An optical disc drive according to claim 23, wherein the recording layer of the optical storage medium can be recorded only once.

95. (Previously Presented) An optical disc drive according to claim 24, wherein the recording layer of the optical storage medium can be recorded only once.

96. (Previously Presented) An optical disc drive according to claim 25, wherein the recording layer of the optical storage medium can be recorded only once.

97. (Previously Presented) An optical disc drive according to claim 20, wherein the recording layer of the optical storage medium is read-only.

98. (Previously Presented) An optical disc drive according to claim 21, wherein the recording layer of the optical storage medium is read-only.

99. (Previously Presented) An optical disc drive according to claim 22, wherein the recording layer of the optical storage medium is read-only.

100. (Previously Presented) An optical disc drive according to claim 23, wherein the recording layer of the optical storage medium is read-only.

101. (Previously Presented) An optical disc drive according to claim 24, wherein the recording layer of the optical storage medium is read-only.

102. (Previously Presented) An optical disc drive according to claim 25, wherein the recording layer of the optical storage medium is read-only.

103. (Previously Presented) An optical disc drive according to claim 22, wherein the first recording layer of the optical storage medium is read-only and the second recording layer can be recorded only once.

104. (Previously Presented) An optical disc drive according to claim 23, wherein the first recording layer of the optical storage medium is read-only and the second recording layer can be recorded only once.

105. (Previously Presented) An optical disc drive according to claim 22, wherein the first recording layer of the optical storage medium is read-only and the second recording layer can be repeatedly recorded and erased.

106. (Previously Presented) An optical disc drive according to claim 23, wherein the first recording layer of the optical storage medium is read-only and the second recording layer can be repeatedly recorded and erased.

107. (Previously Presented) An optical disc drive according to claim 33, wherein the evaluation standard is jitter.

108. (Previously Presented) An optical disc drive according to claim 33, wherein the evaluation standard is an error rate.

109. (Previously Presented) An optical disc drive according to claim 33, wherein the evaluation standard is the time period of an obtained signal.

110. (Previously Presented) An optical disc drive according to claim 32, wherein mark length is adjusted by adjusting the power of the laser beam emitted from the optical pickup head.

111. (Previously Presented) An optical disc drive according to claim 33, wherein mark length is adjusted by adjusting the power of the laser beam emitted from the optical pickup head.

112. (Previously Presented) An optical disc drive according to claim 32, wherein mark length is adjusted by adjusting the pulse width of the laser beam emitted from the optical pickup head.

113. (Previously Presented) An optical disc drive according to claim 33, wherein mark length is adjusted by adjusting the pulse width of the laser beam emitted from the optical pickup head.

114. (Previously Presented) An optical disc drive according to claim 32, wherein the optical disc drive measures jitter from an optical storage medium where the width of 2T-long digital data marks is narrower than the width of digital data marks longer than 2T.

115. (Previously Presented) An optical disc drive according to claim 33, wherein the optical disc drive measures jitter from an optical storage medium where the width of 2T-long digital data marks is narrower than the width of digital data marks longer than 2T.

116. (Previously Presented) An optical disc drive according to claim 32, wherein the optical disc drive measures jitter in a signal obtained by emitting a light beam to the first recording layer of an optical storage medium having a first recording layer and a second recording layer,

wherein the first recording layer is a semi-transparent film that passes part of the light incident thereon,

wherein the light passing the first recording layer reaches the second recording layer.

117. (Previously Presented) An optical disc drive according to claim 33, wherein the optical disc drive measures jitter in a signal obtained by emitting a light beam to the first recording layer of an optical storage medium having a first recording layer and a second recording layer,

wherein the first recording layer is a semi-transparent film that passes part of the light incident thereon,

wherein the light passing the first recording layer reaches the second recording layer.

118. (Previously Presented) An optical disc drive according to claim 20, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and $12pp/18pp < 0.2$.

119. (Previously Presented) An optical disc drive according to claim 21, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and $12pp/18pp < 0.2$.

120. (Previously Presented) An optical disc drive according to claim 22, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and $12pp/18pp < 0.2$.

121. (Previously Presented) An optical disc drive according to claim 23, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and 12pp/18pp < 0.2.

122. (Previously Presented) An optical disc drive according to claim 24, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and 12pp/18pp < 0.2.

123. (Previously Presented) An optical disc drive according to claim 25, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and 12pp/18pp < 0.2.

124. (Previously Presented) An optical disc drive according to claim 31, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and 12pp/18pp < 0.2.

125. (Previously Presented) An optical disc drive according to claim 32, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and 12pp/18pp < 0.2.

126. (Previously Presented) An optical disc drive according to claim 33, where a signal reproduced from a pattern repeatedly recording 2T-long digital data marks and spaces is 12pp, a signal reproduced from a pattern repeatedly recording 8T-long digital data marks and spaces is 18pp, and 12pp/18pp < 0.2.

127. (Previously Presented) An optical disc drive according to claim 20, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

128. (Previously Presented) An optical disc drive according to claim 21, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

129. (Previously Presented) An optical disc drive according to claim 22, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

130. (Previously Presented) An optical disc drive according to claim 23, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

131. (Previously Presented) An optical disc drive according to claim 24, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

132. (Previously Presented) An optical disc drive according to claim 25, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

133. (Previously Presented) An optical disc drive according to claim 31, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

134. (Previously Presented) An optical disc drive according to claim 32, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

135. (Previously Presented) An optical disc drive according to claim 33, where the length of a pair of digital data marks and spaces of length 2T is ML, the wavelength of the light beam emitted from the optical pickup head is λ, the numeric aperture of the collector optics of the optical pickup head is NA, and $ML < \lambda/(1.25 * NA)$.

136. (Previously Presented) An optical disc drive according to claim 20, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

137. (Previously Presented) An optical disc drive according to claim 21, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

138. (Previously Presented) An optical disc drive according to claim 22, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

139. (Previously Presented) An optical disc drive according to claim 23, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

140. (Previously Presented) An optical disc drive according to claim 24, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

141. (Previously Presented) An optical disc drive according to claim 25, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

142. (Previously Presented) An optical disc drive according to claim 31, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

143. (Previously Presented) An optical disc drive according to claim 32, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

144. (Previously Presented) An optical disc drive according to claim 33, further comprising a gain adjustment means so that variation in the amplitude of signals input to the demodulation means is small when the reflectivity of the optical storage medium varies.

145. (Previously Presented) An optical disc drive according to claim 65, wherein the optical disc drive detects jitter as playback signal quality.

146. (Previously Presented) An optical disc drive according to claim 66, wherein the optical disc drive detects jitter as playback signal quality.

147. (Previously Presented) An optical disc drive according to claim 65, wherein the optical disc drive detects an error rate as playback signal quality.

148. (Previously Presented) An optical disc drive according to claim 66, wherein the optical disc drive detects an error rate as playback signal quality.

149. (Previously Presented) An optical disc drive according to claim 65, wherein the optical disc drive determines emission power for recording according to the detected playback signal quality.

150. (Previously Presented) An optical disc drive according to claim 66, wherein the optical disc drive determines emission power for recording according to the detected playback signal quality.